
Space Weather Forecast

Issued on Tuesday 18 February 2025 at 12:40 Local

This forecast provides a four-day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales <https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales>

Space Weather Forecast Headline: Moderate flares likely.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity has been Moderate in the last 24 hours. There are currently eleven sunspot regions on the visible disc. One slightly complex region is now rotating off the west limb. A region in the southwest has faded over the last 24 hours and is reverting to a more straightforward magnetic structure. A region in the southeast has shown some growth of intermediate spots, but remains fairly simple magnetically. Also in the southeast, another region has shown some growth perhaps with some weak magnetic complexity developing in one of the intermediate areas. The remaining regions appear relatively simple at present.

No Earth-directed Coronal Mass Ejections (CMEs) have been observed. Some instability was observed in the southwest starting around 18/0000 UTC, but no CME is apparent in available imagery.

Solar Wind / Geomagnetic Activity: Solar winds showed coronal hole fast winds. Wind speeds were slightly elevated or elevated, varying between 450-530 km/s. Interplanetary Magnetic Field was mostly weak, but recently reached moderate. The north-south component varied weakly. Geomagnetic activity was Quiet to Unsettled (Kp 1-3).

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) persisted at background levels.

Four-Day Space Weather Forecast Summary

Solar Activity: Solar activity is forecast to be Low to Moderate, with isolated Moderate class flares likely.

Solar Wind / Geomagnetic Activity: There are no CMEs currently assessed as Earth directed, however a couple of weak ejections from 14-15 Feb may pass nearby, with glancing influence possible on Day 1 (18 Feb). Otherwise, elevated solar wind speeds are expected to gradually ease to background as the recent fast wind wanes. Geomagnetic activity will be Quiet to Unsettled with a chance of Active intervals on Day 1 if any CME arrival occurs.

Energetic Particles / Solar Radiation: The count rate of energetic particles is forecast to persist at background levels. However, there is a slightly increasing risk of proton flux rising in response

to any larger flares, as the current sunspot regions move westwards into a better position for proton events to be seen at Earth.

Geomagnetic Storms

Geomagnetic Storm	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC)	Day 2 (00-24 UTC)	Day 3 (00-24 UTC)	Day 4 (00-24 UTC)
Probability (Exceedance)			(%)	(%)	(%)	(%)
Minor or Moderate	G1 to G2	No	5	1	1	1
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X-Ray Flares

X-Ray Flares	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC)	Day 2 (00-24 UTC)	Day 3 (00-24 UTC)	Day 4 (00-24 UTC)
Probability			(%)	(%)	(%)	(%)
Active	R1-R2 (M Class)	Yes	60	60	60	60
Very Active	R3-R5 (X Class)	No	5	5	5	5

Solar Radiation Storms (High Energy Protons)

Radiation Storms	Level (cm ⁻² sr ⁻¹ s ⁻¹)	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC)	Day 2 (00-24 UTC)	Day 3 (00-24 UTC)	Day 4 (00-24 UTC)
Probability (Exceedance)			(%)	(%)	(%)	(%)
Active	≥ S1	No	5	5	10	10
Very Active	≥ S3 *	No	1	1	1	1
* S3 ≥ 10 MeV ≥ 1000 pfu and/or 50 MeV ≥ 10pfu. (pfu = cm ⁻² sr ⁻¹ s ⁻¹)						